

## Coast Guard, DHS

## § 111.01-9

- 111.106-9 Classification of flammable or combustible cargo storage and handling locations.
- 111.106-11 Classification of storage and handling locations of heated combustible liquid cargoes.
- 111.106-13 Cargo handling devices or cargo pump rooms handling flammable or combustible cargoes.
- 111.106-15 Ventilation of hazardous locations.
- 111.106-17 Piping: electrical bonding.

### Subpart 111.107—Industrial Systems

- 111.107-1 Industrial systems.

AUTHORITY: 46 U.S.C. 3306, 3703; Department of Homeland Security Delegation No. 0170.1. Section 111.05-20 and Subpart 111.106 also issued under sec. 617, Pub. L. 111-281, 124 Stat. 2905.

SOURCE: CGD 74-125A, 47 FR 15236, Apr. 8, 1982, unless otherwise noted.

### Subpart 111.01—General

#### § 111.01-1 General.

(a) Electric installations on vessels must ensure:

(1) Maintenance of services necessary for safety under normal and emergency conditions.

(2) Protection of passengers, crew, other persons, and the vessel from electrical hazards.

(3) Maintenance of system integrity through compliance with the applicable system requirements (IEEE, NEC, IEC, etc.) to which plan review has been approved.

(b) Combustible material should be avoided in the construction of electrical equipment.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28275, June 4, 1996; 62 FR 23907, May 1, 1997]

#### § 111.01-3 Placement of equipment.

(a) Electric equipment must be arranged, as far as practicable, to prevent mechanical damage to the equipment from the accumulation of dust, oil vapors, steam, or dripping liquids.

(b) Apparatus that may arc must be ventilated or be in ventilated compartments in which flammable gases, acid fumes, and oil vapors cannot accumulate. Skylights and ventilators must be arranged to prevent flooding of the apparatus.

#### § 111.01-5 Protection from bilge water.

Each of the following in or around the bilge area must be arranged or constructed so that it cannot be damaged by bilge water:

- (a) Generators.
- (b) Motors.
- (c) Electric coupling.
- (d) Electric cable.

[CGD 94-108, 61 FR 28275, June 4, 1996]

#### § 111.01-7 Accessibility and spacing.

(a) The design and arrangement of electric apparatus must afford accessibility to each part as needed to facilitate proper inspection, adjustment, maintenance, or replacement.

(b) Within an enclosure, the spacing between energized components (or between an energized component and ground) must be to the appropriate industry standard for the voltage and current utilized in the circuit. Additionally, spacing within any enclosure must be sufficient to facilitate servicing.

[CGD 94-108, 61 FR 28275, June 4, 1996]

#### § 111.01-9 Degrees of protection.

(a) Interior electrical equipment exposed to dripping liquids or falling solid particles must be manufactured to at least NEMA 250 or IEC 60529 (both incorporated by reference; see 46 CFR 110.10-1) IP 22 degree of protection as appropriate for the service intended.

(b) Electrical equipment in locations requiring exceptional degrees of protection as defined in 46 CFR 110.15-1 must be enclosed to meet at least the minimum degrees of protection in ABS Steel Vessel Rules (incorporated by reference; see 46 CFR 110.10-1), section 4-8-3, Table 2, or appropriate NEMA 250 type for the service intended. Each enclosure must be designed so that the total rated temperature of the equipment inside the enclosure is not exceeded.

(c) Central control consoles and similar control enclosures must be manufactured to at least NEMA 250 Type 2 or IEC 60529 IP 22 degree of protection regardless of location.

(d) Equipment for interior locations not requiring exceptional degrees of protection must be manufactured to at least NEMA 250 Type 1 with dripshield

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or IEC 60529 IP 11 as specified in IEC 60529.

[USCG-2003-16630, 73 FR 65195, Oct. 31, 2008]

### § 111.01-11 Corrosion-resistant parts.

Each enclosure and part of electric equipment that can be damaged by corrosion must be made of corrosion-resistant materials or of materials having a corrosion resistant finish.

### § 111.01-13 Limitations on porcelain use.

Porcelain must not be used for lamp sockets, switches, receptacles, fuse blocks, or other electric equipment where the item is solidly mounted by machine screws or their equivalent, unless the porcelain piece is resiliently mounted.

### § 111.01-15 Temperature ratings.

(a) In this subchapter, an ambient temperature of 40 °C (104 °F) is assumed except as otherwise stated.

(b) A 50 °C (122 °F) ambient temperature is assumed for all rotating electrical machinery in boiler rooms, engine rooms, auxiliary machinery rooms, and weather decks, unless it can be shown that a 45 °C (113 °F) ambient temperature will not be exceeded in these spaces.

(c) A 45 °C (113 °F) ambient temperature is assumed for cable and all other non-rotating electrical equipment in boiler rooms, in engine rooms, in auxiliary machinery rooms, and on weather decks. For installations using UL 489 (incorporated by reference; see 46 CFR 110.10-1) SA marine type circuit breakers, the ambient temperature for that component is assumed to be 40 °C (104 °F). For installations using Navy type circuit breakers, the ambient temperature for that component is assumed to be 50 °C (122 °F).

(d) Unless otherwise indicated in this subchapter, a 55 °C (131 °F) ambient temperature is assumed for all control and instrumentation equipment.

(e) If electrical equipment is utilized in a space in which the equipment's rated ambient temperature is below the assumed ambient temperature of the space, its load must be derated. The assumed ambient temperature of the space plus the equipment's actual temperature rise at its derated load

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must not exceed the equipment's total rated temperature (equipment's rated ambient temperature plus its rated temperature rise).

[CGD 94-108, 61 FR 28276, June 4, 1996, as amended at 62 FR 23907, May 1, 1997; USCG-2004-18884, 69 FR 58348, Sept. 30, 2004; USCG-2003-16630, 73 FR 65196, Oct. 31, 2008]

### § 111.01-17 Voltage and frequency variations.

Unless otherwise stated, electrical equipment must function at variations of at least  $\pm 5$  percent of rated frequency and +6 percent to -10 percent of rated voltage. This limitation does not address transient conditions.

[CGD 94-108, 61 FR 28276, June 4, 1996]

### § 111.01-19 Inclination of the vessel.

(a) All electrical equipment must be designed and installed to operate for the particular location and environment in which it is to be used. Additionally, electrical equipment necessary for the maneuvering, navigation, and safety of the vessel or its personnel must be designed and installed to operate under any combination of the following conditions:

(1) 15 degrees static list, 22.5 degrees dynamic roll; and

(2) 7.5 degrees static trim.

(b) All emergency installations must be designed and installed to operate when the vessel is at 22.5 degrees list and 10 degrees trim.

[CGD 94-108, 61 FR 28276, June 4, 1996, as amended at 62 FR 23907, May 1, 1997]

## Subpart 111.05—Equipment Ground, Ground Detection, and Grounded Systems

### § 111.05-1 Purpose.

This subpart contains requirements for the grounding of electric systems, circuits, and equipment.

NOTE: Circuits are grounded to limit excessive voltage from lightning, transient surges, and unintentional contact with higher voltage lines, and to limit the voltage to ground during normal operation. Conductive materials enclosing electric conductors and